

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Masaki Aoshima et al.
Application No. : 10/637,407
Filed : August 7, 2003
For : OPTICAL RECORDING MEDIUM AND METHOD FOR
OPTICALLY RECORDING DATA IN THE SAME

Examiner : Martin J. Angebranndt
Art Unit : 1795
Docket No. : 890050.436
Date : May 14, 2008

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE

Commissioner for Patents:

This is a Response to the Office Action mailed November 14, 2007. Please extend the period of time for response by three months, to expire on May 14, 2008. Enclosed are a Petition for an Extension of Time and the requisite fee. No claims have been amended, and no new matter has been added to the application. No fee for additional claims is due by way of this Response. The Director is authorized to charge any additional fees due by way of this Response, or credit any overpayment, to our Deposit Account No. 19-1090. Claims 5-7, 13 and 17-21 remain pending.

Information Disclosure Statements

On page 2 of the Office Action, the Examiner requested that the Applicants specify why each of the references in a recently submitted Information Disclosure Statement was cited. This Information Disclosure Statement was, in part, provided in response to the Examiner's three-way double patenting rejections in view of other applications owned by the assignee of the present application. It is respectfully submitted that, if the claims of these other

applications are considered sufficiently similar to warrant a double patenting rejection, the art from these applications might also be considered relevant to the Examiner.

It is further noted that certain references submitted in the Information Disclosure Statement were not initialed by the Examiner. The Examiner is respectfully requested to initial the remaining references to indicate that they have been considered and return an updated PTO-1449.

Rejections under 35 U.S.C. § 103(a) Based on Kobayashi

Claims 5, 6, 13 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 62-204442, to Kobayashi *et al.* ("Kobayashi"). Applicants' Japanese attorneys have prepared an English translation of page 3, upper left column, line 10 to page 4, upper right column, line 6 of Kobayashi, which is attached hereto for the Examiner's convenience. The current rejections are respectfully traversed because Kobayashi fails to disclose, teach or suggest all of the elements of the pending claims. *See* M.P.E.P. § 2143.03 (stating that all words in a claim must be considered in judging the patentability of that claim against the prior art).

In particular, claim 5 recites "a first recording layer formed on the substrate and containing an element selected from a group consisting of C, Si, Ge and Sn as a primary component" and "a second recording layer located in a vicinity of the first recording layer and containing an element selected from the group consisting of C, Si, Ge and Sn and different from the element contained as the primary component in the first recording layer." Such a composition for a first recording layer and a second recording layer is not disclosed, taught or suggested by Kobayashi.

As is clear from the attached English translation of Kobayashi, three embodiments are disclosed therein: a first embodiment with first and second layers of Si and Au, a second embodiment with first and second layers of Si and Ag, and a third embodiment with first and second layers of Te and Ge. None of these three embodiments corresponds to the composition of the first and second recording layers recited in claim 5. In particular, the embodiments of Kobayashi including a layer of Si do not include a layer having a primary component of C, Ge or

Sn, and the embodiment of Kobayashi including a layer of Ge does not include a layer having a primary component of C, Si or Sn. Thus, there is no disclosure in Kobayashi of a first recording layer having an element selected from a group consisting of C, Si, Ge, and Sn as a primary component, and a second recording layer having an element selected from a group consisting of C, Si, Ge, and Sn and different from the element contained as the primary component in the first recording layer.

The Examiner, however, asserts that Kobayashi includes a broader teaching, namely that “the first recording layer is of Si, Te, or the like and the second recording material is Au, Ag, Ge or the like.” Office Action, p. 3. Thus, the Examiner argues that Kobayashi suggests that different combinations of these elements may be used to form the first and second layers, including a combination of Si and Ge. Applicants submit that this is a mis-reading of Kobayashi. Referring to the first paragraph of the attached English translation, Kobayashi discloses “a thin layer 4₁ and a thin layer 4₂ made of two different kinds of materials. Si and Au, Si and Ag and Te and Ge, and the like can be used as the materials.” Kobayashi only suggests that combinations like the disclosed combinations may be used, and does not disclose, teach or suggest that the disclosed materials may be mixed and matched.

In fact, as described in the attached English translation of Kobayashi, the two thin layers 4₁ and 4₂ are alloyed during irradiation to form a recording layer 4, and this recording layer 4 must contain particular ratios of the respective elements of the two thin layers. By employing these carefully defined elemental ratios, the different recording layers 4 may be transformed between a crystal phase and an amorphous phase depending upon the power of the laser beam projected onto the recording layer 4. A person of ordinary skill in the art would not understand that this very particular teaching of Kobayashi might be modified as suggested by the Examiner to include a first recording layer of Si, Te, or the like and a second recording layer of Au, Ag, Ge, or the like. Indeed, there is no teaching or suggestion in Kobayashi that a recording layer 4 of Si and Ge would still accomplish the object of Kobayashi's invention.

Therefore, since in Kobayashi the thin film 4₂ must be formed of Au or Ag in the case where the thin film 4₁ is formed of Si and the thin film 4₁ must be formed of Te in the case where the thin film 4₂ is formed of Ge, the compositions of the thin film 4₁ and the thin film 4₂

are clearly different than the compositions of the first recording layer and the second recording layer recited in claim 5.

In view of the above remarks, it is respectfully submitted that the rejection of claim 5 as obvious over Kobayashi is improper.

Claims 6, 13 and 21 depend from independent claim 5 and are allowable as depending from an allowable base claim, as well as for the novel and non-obvious combinations of elements recited therein.

Rejections under 35 U.S.C. § 103(a) Based on Kobayashi, Kinoshita and Morimoto

Claims 5-7, 13 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi, in view of JP 2000-285509, to Kinoshita *et al.* ("Kinoshita") and U.S. patent no. 4,672,345, issued to Morimoto ("Morimoto"). These rejections are respectfully traversed because the Kobayashi and Kinoshita references are not properly combinable. *See* M.P.E.P. § 2143.02 (stating that a proposed modification cannot change the principle of operation of a reference).

As disclosed in the attached English translation of Kobayashi, a phase change type recording medium is disclosed in this reference, with the different recording layers 4 being capable of transforming between a crystal phase and an amorphous phase. In contrast, Kinoshita discloses a mixing type recording medium, wherein the first and second recording layers are alloyed to form recording marks. *See* paragraph [0004] of the machine translation of Kinoshita. Media formed by combining the teachings of Kobayashi with the teachings of Kinoshita would therefore change the principle of operation of the Kobayashi reference.

Because the principle of operation of Kobayashi would be changed in accordance with the proposed combination with Kinoshita, a *prima facie* case of obviousness has not been established, and the rejection should be withdrawn. Moreover, if the Examiner were to rely solely on a combination of Kobayashi and Morimoto, it is respectfully submitted that Morimoto does not supply the teachings described above that are missing from the Kobayashi reference.

Claims 6-7, 13 and 21 depend from independent claim 5 and are allowable as depending from an allowable base claim, as well as for the novel and non-obvious combinations of elements recited therein.

Rejections under 35 U.S.C. § 103(a) Based on Kobayashi, Kinoshita, Morimoto, Okawa and Fukano

Claims 5-7, 13 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi, in view of Kinoshita and Morimoto, and further in view of JP 62-028941, to Okawa *et al.* ("Okawa") or U.S. patent application publication no. 2001/0044073, to Fukano *et al.* ("Fukano"). These rejections are respectfully traversed at least because the Kobayashi and Kinoshita references are not properly combinable for the reasons given above. *See* M.P.E.P. § 2143.02 (stating that a proposed modification cannot change the principle of operation of a reference). Moreover, the teachings of Okawa and Fukano cannot be used as the Examiner suggests in combination with the disclosures of Kobayashi, Kinoshita and Morimoto.

On page 6 of the Office Action, the Examiner asserts that Okawa teaches a Ge-C layer and a Te-C layer, wherein Ge is a primary component in the first layer and C is a primary component in the second layer. It is respectfully submitted that Okawa cannot be interpreted to disclose Ge as a primary component in one layer and C as a primary component in the other layer. There is no suggestion that any one of Ge, Te or C is a primary component of a respective layer disclosed in Okawa, and the Examiner should not use the Applicants' disclosed embodiments to select which of the elements is the primary component. Indeed, based solely on the disclosure in Okawa, if the Examiner selects Ge as the primary component in the Ge-C layer, then the Examiner should select Te (and not C) as the primary component in the Te-C layer.

The Examiner also asserts that "Fukano et al. '860 teach[es] the use of carbon barrier layers between alloying/reaction recording bilayers (2/30-40, 3/5-20)." Office Action, p. 6 (emphasis added). Assuming that this rejection in fact relies upon the teachings in U.S. patent no. 6,210,860, issued to Fukano *et al.*, and not upon the Fukano '073 publication cited above, it is respectfully submitted that, since the carbon layers serve as barrier layers, the carbon would not mix with either of the adjacent alloying/reaction recording bilayers. Thus, the Fukano patent

cannot be combined with Kobayashi, Kinoshita, Morimoto or Okawa (as suggested by the Examiner) in order to render obvious features of the claimed recording medium.

Because a *prima facie* case of obviousness has not been established, the rejection of claim 5 over the above cited references should be withdrawn.

Claims 6-7, 13 and 21 depend from independent claim 5 and are allowable as depending from an allowable base claim, as well as for the novel and non-obvious combinations of elements recited therein.

Rejections under 35 U.S.C. § 103(a) Based on Kobayashi, Rii and Wilkinson

Claims 17-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi or JP 58-220794, to Rii *et al.* ("Rii") in view of U.S. patent no. 4,345,261, issued to Wilkinson ("Wilkinson"). Applicants respectfully submit that these rejections do not present a *prima facie* case of obviousness.

In particular, with reference to the suggested combination of Kobayashi and Wilkinson, it is submitted, for substantially the same reasons discussed above, that Kobayashi fails to disclose, teach or suggest "a first recording layer formed on the substrate and containing an element selected from the group consisting of C, Si, Ge and Sn as a primary component, and a second recording layer located in the vicinity of the first recording layer and containing an element selected from the group consisting of C, Si, Ge and Sn and different from the element contained as a primary component in the first recording layer as a primary component." Since the combination of Kobayashi and Wilkinson also does not disclose, teach or suggest this limitation of claim 17, the rejection of claim 17 over Kobayashi in view of Wilkinson should be withdrawn.

With reference to the suggested combination of Rii and Wilkinson, the rejections are respectfully traversed because there is no motivation to combine these two references, and because the Rii and Wilkinson references are not properly combinable. *See* M.P.E.P. § 2143.02 (stating that a proposed modification cannot change the principle of operation of a reference).

Rii discloses an optical recording medium including two layers of two different materials that, when irradiated, may form a marked area comprising an alloy or mixture of the two

materials. *See* Abstract. In contrast, Wilkinson discloses a recording apparatus wherein information is recorded by evaporating dielectric material in order to remove adjacent metallic material, thereby forming pits in the dielectric and metallic layers. *See* col. 2, ll. 28-48. A person skilled in the art would not be motivated to combine the teachings of these two references. Indeed, even if Rii were modified to use the teachings of Wilkinson, the resulting apparatus would change the principle of operation of the Rii reference.

Because the principle of operation of Rii would be changed in the proposed combination with Wilkinson, a *prima facie* case of obviousness has not been established, and the rejection should be withdrawn.

Claims 18-20 depend from independent claim 17 and are allowable as depending from an allowable base claim, as well as for the novel and non-obvious combinations of elements recited therein.

Rejections under 35 U.S.C. § 103(a) Based on Kobayashi, Rii, Wilkinson, Okawa and Fukano

Claims 17-20 were also rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobayashi or Rii with Wilkinson in view of Okawa or Fukano. It is respectfully submitted that these rejections do not present a *prima facie* case of obviousness for the reasons discussed above.

In particular, the combinations of Kobayashi and Wilkinson or Rii and Wilkinson are not proper and do not teach all of the limitations of independent claim 17. Moreover, the teachings of Okawa and Fukano cannot be used as the Examiner suggests in combination with the disclosures of Kobayashi, Rii and Wilkinson.

For at least these reasons, a *prima facie* case of obviousness has not been established, and the rejections should be withdrawn.

Claims 18-20 depend from independent claim 17 and are allowable as depending from an allowable base claim, as well as for the novel and non-obvious combinations of elements recited therein.

Obviousness-Type Double Patenting Rejections

Claims 5-7, 13 and 17-21 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over U.S. patent application no. 11/268,109 filed by Aoshima *et al.*, as being unpatentable over U.S. Patent Application No. 10/818,324 filed by Aoshima *et al.*, and as being unpatentable over U.S. Patent Application No. 10/748,979 filed by Arai *et al.*

As noted by the Examiner, a terminal disclaimer may be used to overcome a provisional rejection based on non-statutory obviousness-type double patenting. A terminal disclaimer may be considered in the present application if one or more of the above-listed co-pending applications issues before the present application and if the present application is still pending at that point. Otherwise, it is respectfully submitted that since none of these other co-pending applications has yet issued, the present application can be passed into allowance and issued without the filing of a terminal disclaimer.

Conclusion

In light of the above remarks, it is respectfully submitted that all of the pending claims 5-7, 13 and 17-21 are allowable. Therefore, it is respectfully requested that the Examiner reconsider this application and timely allow all pending claims. The Examiner is encouraged to contact Mr. Evans by telephone to discuss the above and any other distinctions between the claims and the applied references, if desired. If the Examiner notes any informalities in the claims, he is further encouraged to contact Mr. Evans by telephone to expediently correct such informalities.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,

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Enclosure:

Partial English Translation of JP 62-204442, "Kobayashi"

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